This article was downloaded by: [Memorial University of Newfoundland]
On: 20 July 2013, At: 08:03
Publisher: Routledge
Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK

Central Asian Survey
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/ccas20

Economic development and political nationalism in Uzbekistan

Alastair McAuley [a]
[a] Reader in Economics, University of Essex, England
Published online: 13 Sep 2007.

To cite this article: Alastair McAuley (1986) Economic development and political nationalism in Uzbekistan, Central Asian Survey, 5:3-4, 161-182, DOI: 10.1080/02634938608400561

To link to this article: http://dx.doi.org/10.1080/02634938608400561

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at http://www.tandfonline.com/page/terms-and-conditions

Central Asian Survey, Vol. 5, No. 3/4, pp. 161–182, 1986
Printed in Great Britain

0263-4937/86 $3.00 + .00
Pergamon Journals Ltd.
© 1986 Society for Central Asian Studies

Economic Development and Political Nationalism in Uzbekistan

ALASTAIR McAULEY

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

INTRODUCTION

This paper examines certain general aspects of the policies that have been pursued to secure continuing economic development in Uzbekistan. At first sight, such a topic may seem to have little relation with political nationalism. But I believe that the two subjects are connected.

In studying elites, one is interested not only in their objective characteristics or the social factors that determine their formation. One is also interested in elite self-perceptions and, perhaps, their capacity for effective social action. Now, it is generally accepted that economic conditions exercise considerable influence on political and cultural ideology. For example, Gellner (1983, p. 24, 112) suggests that political nationalism is likely to be more prevalent among members of an elite in circumstances where the economy is unable to ensure expansion in "high-level" jobs at a rate equal to the growth in supply of applicants. Nationalism serves as an instrument through which a particular group seeks to reserve for itself jobs and the control over resources that elite employment confers. Further, disgruntled potential elites may be able to invoke support from an impoverished or from a dislocated (and hence, alienated) peasantry for their programme of "nationalist" reconstruction. Indeed, one might go so far as to suggest that the character and amount of economic development experienced by a region are the most important determinants of the extent of political nationalism among its elite.

In a recent paper (McAuley, 1985) I argued that the populations of Soviet Central Asia had displayed few signs of widespread support for the doctrine of political nationalism — at least until the late Brezhnev period. And I attributed this to Soviet development policy. There was no room in that paper to set out this argument at length nor to explain why the late 1970s may have been a watershed; why the rest of the

century may witness more political unrest in the region. These themes are taken up here. The economic history of the four republics of Soviet Central Asia in the post-war period differs in certain significant respects and each should receive separate analysis. Lack of space precludes such an approach in this paper, however, so it is confined to a discussion of the Uzbek experience since the UzSSR is the largest of the four and economically the most important.

The structure of the paper is as follows. In Section 2 I describe the growth of output and the changes in the structure of production that have taken place since 1960. This serves to provide a measure of the Soviet achievement. The next two sections consider aspects of the policies that have been responsible for that achievement. Section 3 deals with employment and training. Section 4 discusses fixed capital and also deals with the growth in productivity. The final section draws certain inferences about the evolution of political attitudes among the elite.

2. OUTPUT GROWTH IN UZBEKISTAN, 1960–1982

In this section the changes in the level and structure of output in UzSSR that have occurred since 1960 are described. This will serve two purposes. First, changes in volume and composition of national product reflect the impact of economic policies. So the discussion will provide evidence that can be used to assess the effectiveness of measures discussed later in the paper. Second, national income (or, rather, national income per capita) can serve as an indicator of living standards; thus the analysis of income growth provides evidence about the welfare impact of Soviet policy.

Before turning to a discussion of the lessons that can be drawn from the figures in Table 1, however, several comments of a methodological nature must be made. Economists have devised a number of different concepts of aggregate output; in the west, we are most familiar with Gross National Product (Gross Domestic Product.) This attempts to measure the gross value of goods and services accruing to the inhabitants of (produced in) a territory in a period of time. From a welfare point of view this is certainly the most appropriate indicator to use. But it is not calculated by official economic statisticians in the USSR. While it is possible to estimate GNP from available published materials such an exercise is time-consuming and results are liable to error — particularly at the republic level where supporting materials are less readily available than for the USSR as a whole. So it was decided to rely upon the officially published series for Net Material duct (NMP).

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

NMP differs from GNP principally in that it excludes the value of services produced (these are defined as the output of so-called non-productive sectors) and it also excludes the value of capital consumption. There are, finally, significant differences in the treatment of indirect taxes. Second, Soviet sources distinguish between NMP produced within a region and NMP utilised within that region. The difference between these indicators includes losses in production and the balance of trade — in domestic prices. Where sub-national units are concerned, the difference may also include an element of inter-regional transfer; but the extent of this will depend upon the institutional channels through which this is effected. On balance, NMP utilised is a better indicator of welfare, although as the two series usually move closely together, the error that comes from using NMP produced is not likely to be very large. Finally, analysis has been confined to 1960–1982 since these years represent the limits within which statistical materials were readily available at the time of writing.

Table 1. Net material product produced and utilised: UzSSR, 1960–1982.

	NMP (in million rubles)					
	1960	1965	1970	1975	1980	1982
NMP in 1970 prices:						
Industry and Construction	1627	2693	4148	6528	8262	9195
Agriculture	2387	2817	3223	3094	3868	3739
Transport and Communication	102	212	342	492	700	823
Trade, Material Supply etc	575	708	990	1702	2781	3246
NMP Produced	4691	6429	8702	11,816	15,611	17,003
NMP Produced in current prices	4069	5496	8702	12,483	17,465	20,070
Implicit NMP deflator	87	85	100	106	112	118
NMP Produced per capita (R)	539	618	727	848	978	1011
NMP Utilised per capita		681	787	860	1031	1024

Sources: NMP Produced in constant prices calculated from growth indices for individual sectors and composition in current prices in 1970 — *NK UzSSR* v (1970), p. 215–216; *NK UzSSR* v (1982), p. 194.

NMP Produced in current prices — *NK UzSSR* v (1970), p. 215; *NK UzSSR* (1982), p. 194.

NMP per capita — deflated by mid-year population, taken from *NK UzSSR* various years.

NMP Utilised calculated from Utilised NMP in current prices divided by both the mid-year population and the implicit deflator — *NK UzSSR* v (1982) p. 195.

Table 1 contains information on the volume of Net Material Product generated in each of the main sectors of material production and

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

in the Uzbek economy as a whole for a number of benchmark years between 1960 and 1982. The picture they reveal in its main outlines will not surprise those familiar with Soviet economic evolution in the postwar period. Net material product has grown rapidly since 1960: between 1960 and 1970 it virtually doubled and it more or less doubled again between 1970 and 1982. But the average annual rate of growth has fallen in each successive quinquennium; NMP grew at 6.5 per cent per annum in 1960–1965 but only 4.4 per cent after 1980.

Rapid growth in output has been accompanied (or, possibly, occasioned) by changes in composition. In 1960, Agriculture still generated a half of NMP while Industry and Construction was responsible for little more than a third. By 1970, these proportions had been more or less reversed: Industry and Construction generated some 48 per cent of NMP in that year and Agriculture only 37 per cent. Since 1970, the relative importance of Agriculture has continued to decline, but the growth of Industry and Construction has slowed down; in 1982 Agriculture produced 22 per cent of NMP while Industry and Construction produced 54 per cent. There is some uncertainty, however, about the extent of the shift in resources that these figures reveal. The 1970s witnessed the relative rise of the sector labelled Trade, Material Supply and Procurements; in 1970 as in 1960 this sector had generated 11 per cent of NMP — in 1982 it was responsible for 19 per cent. In some degree, these figures will reflect a genuine increase in the provision of "productive" services; but they may well also reflect adjustments in the relationships between the procurement prices of technical crops paid to farms and the wholesale prices at which they are transferred to industrial enterprises (and not properly excluded in the deflation process.) The shift out of agriculture may, therefore, be somewhat overstated. Finally, there has been an eight-fold increase in Net Material Product generated by the Transport and Communications sector.

This growth and structural change has been achieved without significant inflation. The implicit deflator increased by 13 percentage points between 1960 and 1970, implying an annual rate of inflation of approximately 1.4 per cent; if anything, the implied rate since 1970 has been slightly lower. Not too much should be read into this record of price stability, however, since the mechanisms of price determination do not respond quickly to market disequilibrium. It is conceivable, indeed likely, that the Uzbek economy has suffered from significant and persistent excess demand — particularly in the 1970s.

The population of Uzbekistan has grown rapidly in the past quarter-century — and, as a result, the growth in NMP per capita has been more modest than that of total output. Between 1960 and 1970 NMP produced per capita increased by 35 per cent; between 1970 and 1982

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

NMP utilized per capita has increased by another 30 per cent. (Unfortunately, I have been unable to find an estimate of NMP utilised in UzSSR in 1960.) These figures imply a growth in living standards of 3 per cent per annum in the 1960s and 2.2 per cent since then. Such increases over such a considerable period of time represent a substantial achievement. But, to put this experience into perspective: in 1970, NMP utilised per capita in Uzbekistan was only two-thirds of that for the USSR as a whole and there is no reason to believe that relativities have changed radically since then. Living standards in Uzbekistan are still low relative to European parts of the country. And, finally, NMP utilised per capita in UzSSR actually fell between 1980 and 1982.

In summary, Soviet economic policy in Uzbekistan has been able to maintain significant growth in output on the basis of a shift from Agriculture to Industry and Construction. Agriculture, moreover, is still a relatively large source of output even if from the figures it is not clear how large. Continuing growth in output has made it possible to ensure rising living standards despite rapid growth in population. But, at least according to official figures, the population of Uzbekistan is relatively poor; and at the beginning of the 1980s growth in incomes appeared to have stalled if it had not ceased. Let us now examine the patterns of factor use that have been responsible for these developments, starting with employment.

3. EMPLOYMENT IN THE UZBEK ECONOMY, 1960–1982

The demographic behaviour of the population of Central Asia has differed markedly from that of the population of the European provinces of the USSR in the past thirty years or so. The birthrate in the former regions has remained high and may even have increased; in the latter, it has fallen continuously. This has meant that the economy in Central Asia still has its disposal ample supplies of labour whereas that of European Russia is faced with labour shortages. Indeed, finding jobs for all who seek employment may be thought of as a problem that the planners face in Central Asia, rather than as an asset of the system there. It is for this reason, as well as because the traditional Soviet approach to economic development emphasises the mobilisation of labour, that the analysis of factor use in Uzbekistan starts with employment.

In this section, I will explore two issues. First, I will chart the growth in the occupied population that has taken place in the past quarter-century and discuss one possible measure of structural unemployment. This will focus attention on the planners' attempts to

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

Table 2. Average annual employment in the state, co-operative and private sectors: UzSSR, 1960–1982.

	Annual employment (in thousands)					
	1960	1965	1970	1975	1980	1982
State employment	1565	2083	2642	3343	4169	4544
Kolkhoz employment	1000	973	1030	1054	998	1021
Private plot employment:						
Kolkhoznik families	279	200	217	233	281	326
State employee families		87	108	138	163	176
Total labour supply	2844	3343	3996	4769	5611	6066
Growth in employment:						
Total	100	118	140	168	197	213
State and co-operative	100	119	143	171	201	217

Sources: State employment — *NK UzSSR* v (1965) p. 254; *NK UzSSR* v (1982), p. 188.

Kolkhoz employment — *NK UzSSR* v (1965), p. 192; *NK UzSSR* v (1982), p. 151.

Private plot employment — calculated from the structure of employment [*NK UzSSR* v (1982), p. 188] as follows. In 1965, for example, 62.3 per cent of the occupied population was employed by the state and 35.1 per cent worked for kolkhozy, or were kolkhoz family members in the private sector. The figures on average annual employment in the state and *social* sector of the kolkhoz, given above, imply that the number of kolkhozniki working in the private sector were equivalent to an annual average employment of 200,000 persons. Similarly, 2.6 per cent of the occupied population were state employee family members in the private sector. Together with annual average employment in the state sector, this figure implies an annual average equivalent employment of 87,000 persons. Figures for other years were derived in the same way.

mobilise labour. Second, changes in the sectoral composition of employment will be examined and the growth in the number of specialists and skilled workers assessed. This will cast light on the government's attempts to encourage so-called intensive sources of growth.

Estimates of employment in Uzbekistan for the benchmark years of Table 1 are given in Table 2. Figures are given in terms of the Soviet concept of average annual employment. Crudely, this means that if a man works for one month in a year he is counted as one twelfth of an average annual employee (although, in fact, figures are calculated on the basis of the number of days that individuals work). The table reports state employment separately from the numbers who work on collective farms. This is a reflection of Soviet practice. There are certainly differences in the terms and conditions of employment in the two sub-sectors (these were much more marked in the past, however, than they are today) but it is assumed that they can be aggregated without adjustment. The table also contains estimates of the amount

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

of labour devoted to private agriculture — again in terms of annual average equivalent workers. This indicator has been interpreted by some observers as measure of structural unemployment, an issue to which I return below.

The occupied population of Uzbekistan more than doubled in the twenty-two years covered by Table 2 from 2.8 million to more than 6 million persons. And the growth shows no signs of abating: in the decade from 1960 to 1970 employment grew at an average rate of 3.4 per cent per year, while in the next twelve years it grew at 3.5 per cent per annum; in 1980–82 the rate was as high as 4.0 per cent a year.

This picture does not change significantly if we accept the contention that those who work in the private agricultural sector are effectively unemployed — and a majority of them are actively seeking state or collective-farm employment. Although the amount of labour supplied to the private agricultural sector has increased from an estimated 279,000 man–years in 1960 to 502,000 man–years in 1982, the share of private-sector work in total employment has fallen marginally, from almost a tenth to 8.3 per cent.

Employment on collective farms has remained more or less constant in absolute terms — at approximately 1 million man–years. This is in marked contrast to the experience in other parts of the country where numbers of collective farmers have fallen steadily as a result of rural–urban migration, falling rural birth-rates and the conversion of collective farms into sovkhozy.

The impact of population growth on the allocation of labour in kolkhozy can be inferred from a comparison of social and private employment in the co-operative sector. In 1965, work on private plots accounted for less than a fifth of the total labour supplied by kolkhoznik families while work for the collective farm made up more than four-fifths. In 1982, by contrast, private plots accounted for almost a quarter of the labour supplied by kolkhoz families. And the share of the private sector is growing: it increased by two percentage points between 1975 and 1980 and by a further two between 1980 and 1982. Such a development is certainly consistent with the proposition that kolhhozy are faced with an excess supply of labour.

Finally, Table 2 shows that employment in the state sector trebled between 1960 and 1982. This represents the scale of the mobilisation effort that has been undertaken by the Soviet authorities. The uses to which this labour has been put can be inferred from the figures in Table 3. These show the sectoral composition of employment for the benchmark years that are used throughout this paper.

In 1960, as much as 57 per cent of total employment was still in agriculture and less than a fifth was in industry and construction. This gives some indication of the extent to which Central Asia had been

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

Table 3. Composition of total employment: UzSSR, 1960–1982

	Composition of employment (in per cent)					
	1960	1965	1970	1975	1980	1982
Industry and construction	18	22	24	24	23	23
Agriculture						
State sector	12	9	8	10	13	16
Kolkhoz sector	35	29	26	22	18	17
Private sector	10	9	8	8	8	7
Transport and Communications	5	6	6	6	7	7
Trade, material supply etc.	5	6	7	7	7	7
Non-productive sphere	16	19	22	23	24	24
Total employment	100	100	100	100	100	100

Sources: NK UzSSR v (1965), p. 255; *NK UzSSR* v (1982), p. 187.

developed by Soviet planners as a specialist producer of technical crops. In the next ten years, employment in agriculture fell to about two-fifths and that in industry and construction rose by almost a quarter. This decade witnessed a significant structural shift in the economy. Since 1970, however, there has been little further relative change in the structure of employment.

Two further features of the table deserve comment: first, there has been a growth in the relative importance of state agriculture. This is parallel to developments in other parts of the country, but in Uzbekistan they have not proceeded so far. From an administrative point of view, control of agriculture would be simpler if there were only one type of farm. And in European parts of the country, the conversion programme has gone a long way towards producing such an outcome. But the rights of children to membership of the kolkhozy to which their parents belong are stronger than are the rights of children to employment on sovkhozy for which their parents work. And the need to ensure adequate employment opportunities for a rapidly growing rural population has limited the rate of change.

Second, by comparison with the rest of the USSR, employment in industry and construction is low, while employment in the non-productive sphere is relatively high. For the country as a whole in 1975, for example, some 38 per cent of the occupied population were employed in industry and construction and only 22 per cent in the so-called non-productive sectors. These differences in structure mean that a somewhat higher priority is ascribed to the supply of consumer services in Uzbekistan than in the Ukraine or the RSFSR while, given the peculiarities of Soviet national income accounting, measured NMP will be lower. Also, insofar as capital per employee in the non-

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

productive sector is lower than in industry, job-creation will be easier.

The non-productive sphere includes a range of low-level service sectors, but it also incorporates such activities as education, medical care and administration — which call for the employment of high-level specialists. And, in common with other parts of the Soviet Union, there has been a rapid increase in the numbers of such people employed in Uzbekistan. Table 4 shows that in 1960, there were approximately a quarter of a million employees in the republic with a qualification from either a secondary specialist or a higher educational establishment — almost one in ten of those at work in the state and collective-farm sectors. Since then, numbers have increased steadily; by 1980 there were more than a million such specialists; one in five employees held a specialist qualification. It is from this group and more particularly, from the half-million employees with higher educational qualifications that the elite of Uzbekistan will be drawn.

Investment in the training of high-level manpower in Uzbekistan has been complemented by an expansion in the training of skilled workers. In the twenty years or so covered by this paper, the number of trainees graduating from trade schools, *prof-tekh uchilische*, each year has increased ten-fold. In 1960, the number of trained workers produced was about the same as the number of graduates from VUZy. The vast majority of those who joined the labour force at that time did so without having acquired any skill. By 1982, however, almost three times as many trained workers as graduates of VUZy were

Table 4. High-level manpower in the Uzbek Economy: 1960–1982

	1960	1965	1970	1975	1980	1982
Specialists in employment (in thousands)	242	358	531	788	1081	1190
Specialists per thousand in State and co-op sectors	94	117	145	179	209	214
Graduates (in thousands) from:						
VUZy	14	19	33	36	44	48
Sec. Spec. Establishments	15	17	41	51	64	71
PTU	14*	21	42	75	115	139

Sources: Specialists in employment — NK UzSSR v (1965), p. 258; *NK UzSSR* v (1982), p. 190.

Graduates, *vypusk*, from VUZy and secondary specialist establishments — *NK UzSSR* v (1965), p. 329; *NK UzSSR* v (1982), p. 259.

From *PTU — NK UzSSR* v (1965), p. 264; *NK UzSSR* v (1982), p. 191.

* Enrolments.

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

produced. And a substantial proportion of new accessions to the labour force probably had some relevant skill.

In the absence of information about the age-structure of the employed population, it is difficult to produce evidence to demonstrate this last point but the following figures are suggestive. In 1982, the numbers employed in state and collective farm sectors increased by 190,000. This will have been the resultant of a larger number of accessions and the withdrawal of those reaching retirement age, migrating to other parts of the country or deciding to devote themselves full-time in family-care. If the employed population were distributed by age uniformly between 20 years and 57.5 years, approximately 150,000 persons would have reached retirement age in 1982. This is likely to be an over-estimate of total withdrawals. Thus, total accessions are unlikely to have exceeded 340,000 persons. But Table 4 shows that in the same year, there were almost 50,000 VUZ graduates, 71,000 persons obtained a secondary-specialist qualification and 139,000 completed courses at trade schools; in total, there were 258,000 graduates of the education and training system available for employment in the economy.

This substantial commitment of resources to an upgrading of the stock of skilled manpower in the economy is not without its problems, however. The figures show that the authorities are having "to run faster and faster, just to stay in the same place." For example, between 1960 and 1965 the system produced about 160,000 new specialists from VUZy and secondary specialist establishments; over the same period, the "stock" of specialists in employment increased by 116,000. Some excess of graduations over the increase in employment is to be expected, to allow for retirements, for net out-migration, for those who decide not to take up specialist employment and so forth. But, the production of 1.4 specialists for each unit addition to the pool of employment appears somewhat high. As the proportion of specialists in the labour-force increases (and hence, as their average age falls) one would expect the ratio of accessions to employment to fall. In fact, it has increased; between 1965 and 1975 the system produced 1.6 specialists for each unit addition to the specialist employment pool; between 1980 and 1982 the figure had increased to 2.1.

These figures are insignificant, however, when compared with the problem of equipping agriculture with "mechanisers". In the late 1960s, the educational system produced more than six qualified tractor-drivers etc. for each unit increase in employment; in 1980–1982 the figure was over thirty-five! Part of the explanation for this state of affairs is well-known. Qualified drivers and motor mechanics do not need to remain on the farm; with their new skills they can more easily find worthwhile employment elsewhere in the economy. It is to be

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

Table 5. Budgetary Expenditure on training per potential trainee: Uzbekistan, Estonia and the Soviet Union, 1960–1982

	Budgetary expenditure (in rubles)				
	1960	1965	1970	1975	1980
Budgetary expenditure on					
VUZy	48	62	64	60	
Tekhnikumy & other Sec. Spec.	17	29	32	36	
Training Courses	3	4	2	3	
All training activities	80	115	123	146	197
Budgetary expenditure on all training activities					
Estonia	195	229	272	358	484
USSR	156	195	210	280	371

Sources: Entries refer to budgetary expenditure on post-secondary education of various types per student enrolled in classes 4–8 of the general secondary school five years previously. For 1960 and 1965 the school enrolment figures were calculated by grossing up the numbers in classes 5–8 by 27 per cent in the USSR and by 31 per cent in Uzbekistan. These factors were taken from the ratio of enrolments in classes 4–8 and 5–8 in 1970.
Budgetary expenditure — *Gos. Biudzhet* (1965–1970), pp. 55–58; *Gos. Biudzhet* (1971–1975), pp. 53–56; *Gos. Biudzhet* (1976–1980), p. 38.
School Enrolments — *NK UzSSR* v (1965), p. 318; *NK UzSSR* v (1982), p. 244; *NK SSSR* v (1975) p. 244; *NK ESSR* v (1971), p. 308; *Eesti NSV* (1977), p. 261.

conjectured that analogous forces are in operation among specialists. But it is not clear in detail what they are. Perhaps, we have identified a flow of slavs back to better jobs in the central provinces; perhaps specialists are being recruited disproportionately into the ranks of the Red Army; perhaps it is only a statistical artefact and that, increasingly, those with secondary specialist qualifications are going to study at VUZy. Since these hypotheses carry different implications for the composition and self-identity of the elite Uzbekistan, this phenomenon clearly merits further study.

The inference to be drawn from the material presented so far is that the authorities in Uzbekistan have devoted considerable resources to the training of specialists and skilled workers and that this has resulted in the provision of training opportunities for the bulk of school-leavers. The figures in Table 5 cast some doubt on this interpretation. The table reports an attempt to assess the scale of expenditure on training in the republic both by reference to potential demand and in comparison with achievements elsewhere in the Soviet Union. On the one hand, I have collected information on various categories of budgetary expenditure on training; on the other, I have attempted to identify a target population. For this exercise, I have identified this as

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

enrolements in classes 4–8 of general secondary schools five years previously. This is approximately the same as the population aged 15–20. While this latter group is too narrow, it much more appropriate than the population as a whole.

There is not enough space in this paper to discuss all the implications of Table 5 adequately, so comment will be limited to three. First, the table suggests that expenditure per "person at risk" increased two and a half-fold between 1960 and 1982. This overstates the increase in real resources provided. Over the same period, teachers' salaries have increased substantially so the increase in the number of staff-hours per potential trainee will have been much more modest.

Second, expenditure per potential trainee seems extremely modest. In 1975, average earnings in the USSR as a whole were 146 rubles per month; so the figures imply a scale of effort such that on average, new entrants to the labour-force can expect less than one man month of a teacher's time for training (in fact much less since less than half of total budgetary expenditure was on teachers' salaries). If some young people received more (and those at university certainly did) others must have received less. The amount of training provided by *tekhnikumy* and trade-schools must have been modest — even if some part of the cost of such establishments is met from the non-educational budget. This conflicts with the conclusion about the rapid increase in the availability of skilled manpower reached above.

Some part of this conflict may be illusory, however. Since expenditure per potential trainee for the USSR as a whole and for such a developed republic as Estonia are also very low according to this method of calculation. And there is other evidence that confirms the growth in the availability of industrial skills for the country as a whole. Nevertheless, the table shows that according to the indicator, Uzbekistan spends barely half as much on training per potential trainee as the national average — and about two-fifths as much as Estonia. This is presumably in part a consequence of budgetary stringency and of the relatively large cohorts of young people that the state has had to deal with since 1960.

In conclusion, then, the figures presented here show that the Soviet authorities have been able to absorb (even if with some difficulty) the rapid increase in labour supply that has occurred in Uzbekistan in the postwar period. This was accompanied by structural change before 1970; since then there has been a more balanced growth in employment. The government has committed substantial resources to training both specialists and skilled workers. All the same, the scale of this effort, relative to potential demand, has been the more modest than those undertaken in other parts of the country.

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

4. FIXED CAPITAL AND PRODUCTIVITY IN THE UZBEK ECONOMY

The traditional Soviet development strategy involved the mobilisation of labour and capital and their commitment to the construction of industrial capacity in a limited number of high-priority sectors. Having considered the mobilisation and allocation of labour in the previous section, attention will now be focused on changes in the amount and distribution of fixed capital; this section will also consider the impact of decisions about the allocation of labour and capital on economic performance.

The basic work of producing a consistent set of estimates of the capital stock in different sectors of the economies of individual Soviet republics from official statistics has already been undertaken by Jim Gillula of the Foreign Demographic Analysis Division of the US Bureau of the Census. The figures in Table 6 merely reproduce his and bring them up to date.

The table reveals that the volume of fixed capital in the Uzbek economy has increased extremely rapidly since 1960. During the 22 years covered, rate of growth of the capital stock averaged almost ten per cent per year. Inevitably, however, the rate of growth has slowed down: during the 1960s it was almost 11 per cent a year but it has fallen in each successive quinquennium and in 1980–1982 it averaged only 8.0 per cent.

Rapid growth has been accompanied by changes in structure. The share of housing has fallen particularly sharply. (This does not mean

Table 6. Composition of fixed capital: UzSSR, 1960–1982

	1960	1965	1970	1975	1980	1982
Fixed Capital (1973 prices)						
Million rubles	8387	13712	23391	37328	56057	65403
of which (per cent)						
Industry and construction	22	25	27	28	28	28
Agriculture	22	22	21	23	24	25
Transport and communication	10	12	12	13	13	13
Trade, material supply etc.	4	4	4	4	4	4
Housing	30	24	22	19	17	17
Other non-productive	13	14	14	14	14	14

Sources: J. Gillula Fixed Capital in Soviet Republics in 1973 Prices: 1960 *to* 1979, FDAD Working Paper, Mimeo, Washington, DC, (1981), p. 24; *NK UzSSR* v (1982), p. 19.

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

that there has been disinvestment in the housing sector; far from it; the value of capital in housing in Uzbekistan has increased at an average rate of 7.0 per cent per annum between 1960 and 1982.) The fall in the share of housing has been taken up by increases in the relative importance of the main productive branches. Both industry and construction, and transport and communications have seen their shares increase by about a third, while the share of agriculture has gone up by a seventh. Interestingly, in view of what has happened to output originating in trade and material supply, there has been no increase in the relative share of the sector in the allocation of fixed capital.

Now that changes in the level and composition of both employment and fixed capital have been considered, their contribution to output growth can be assessed. This has been done according to the methodology developed by Bergson and Cohn (see Bergson, 1978, and Cohn, 1969) and the results are reported in Tables 7 and 8. This method, at least when applied to the USSR as a whole, is not without its critics (see, for example Weitzman, 1970 and Gomulka,, 1976) and if their reservations are valid, the conclusions which follow might be undermined. They should, therefore, be accepted with due caution until a technically more sophisticated analysis has been undertaken to resolve controversial questions.

Very crudely, the Bergson–Cohn methodology assumes that production possibilities in the economy and its individual sectors can be represented by a Cobb–Douglas production function. This implies that the elasticity of substitution between factors is equal to unity (and is unaffected by changes in factor proportions, however extreme they may be). This, in turn, implies that the rate of growth of total factor productivity can be computed as the difference between the growth of output and a weighted average of the rates of growth of inputs. The weights should equal the (constant) "factor shares". A second feature of the methodology is that these "shares" are assumed or calculated rather than estimated by econometric procedures.

What inferences can we draw from the figures in Table 7? The first row shows how successful the authorities have been in maintaining output growth — and also that growth-rates fell sharply towards the end of the period. The next four rows relate to the growth in selected inputs: they show a rising rate of growth of labour, a high, but falling, rate of growth for fixed capital and, perhaps surprisingly, continuing growth in the area of land under cultivation.

These indices have been combined using various assumptions about marginal productivity — and the results are displayed in rows (6)–(8) of the table. Details of these assumptions are given in Appendix I, but they can be summarised as follows: in A it is assumed that fixed capital earns a 12 per cent rate of return, while in B, the rate of

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

Table 7. Annual average rates of growth of output, selected inputs and total factor productivity: UzSSR, 1960–1982

	1960–65	1965–70	1970–75	1975–80	1980–82	1960–82
NMP produced	6.5	6.2	6.3	5.7	4.4	6.0
Employment in productive sphere	2.4	3.0	3.2	2.9	4.0	3.0
Prod. fixed cap.	12.2	11.9	10.7	9.0	8.7	10.7
Sown area	1.2	0.8	1.4	1.4	1.2	1.2
Livestock	(0.02)	2.4	1.6	2.2	4.5	1.8
Selected inputs:						
Weights A	4.3	4.6	4.5	4.0	4.6	4.4
Weights B	3.4	3.7	3.8	3.4	4.1	3.6
Weights C	3.9	4.2	4.2	3.8	4.5	4.1
Total Factor Productivity	2.2–3.1	1.6–2.5	1.8–2.5	1.7–2.3	(0.3)–0.2	1.6–2.4

Sources: NMP — calculated from Table 1, above
Employment — calculated from Table 2 above.
Productive Fixed Capital — Table 6 above.
Sown Area — *NK UzSSR* v (1965), p. 107; *NK UzSSR* v (1982), p. 88.
Livestock — *NK UzSSR* (1965), p. 163, 172; *NK UzSSR* (1982), p. 115, 119. Figures on various animals combined using the following weights: cows 1; other large horned beasts 0.8; pigs, sheep and goats 0.1; horses 1; poultry 0.01.
For all explanation of the various weights used to aggregate factor inputs, see Appendix I.
A figure in parentheses denotes a *negative* rate of growth.

return is only 6 per cent; in A and B it is assumed that the whole occupied population is productively employed, while C assume that those recorded as working in the private sector are in fact unemployed.

The figures in rows (6)–(8) of the table suggest that, in the 1960s the growth in factor inputs was responsible for a half to three-quarters of the growth in output; the rest was accounted for by increases in productivity. (In fact, this is something of a misnomer. It is the "residual" that accounts for a quarter to a half of the growth in NMP produced over this period; but economists believe that the most important component in this residual is productivity-growth occasioned by structural and technical change.) By the end of the 1970s, the share of growth attributable to increases in inputs had risen; and in 1980–1982 productivity growth was even negative on two sets of assumptions. This experience parallels that of the USSR as a whole. It suggests that planners have experienced significant difficulties with the introduc-

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

tion of new technology. This, in turn, means that they may well experience problems in maintaining the increases in output per person employed that have formed the basis for past increases in living standards. It may also reflect a failure to secure a sufficiently rapid transfer of resources out of agriculture and into industry, construction and transport.

The Bergson–Cohn methodology for the analysis of the sources of output growth has also been applied to individual productive sectors of the Uzbek economy. The results are reported in Table 8. The first panel refers to industry and construction. It shows first that exceptionally high rates of growth of output were attained during the 1960s; that there was a precipitant decline after 1975; that at least three-quarters of the growth in output (and perhaps as much as 85 per cent) over the period as a whole can be attributed to increases in inputs. These results must seem depressing to planners in Moscow and Tashkent. Industry, after all is assumed to be the leading sector, the engine of innovation and productivity growth. But its performance in this area in Uzbekistan since 1960 has been modest at best.

The second panel of the table refers to Agriculture. Planners will find no comfort in the figures reported here either. Although the re-

Table 8. Annual average rates of growth of total factor productivity in various sectors: UzSSR, 1960–1982

	1960–65	1965–70	1970–75	1975–80	1980–82	1960–82
Industry and construction						
NMP	10.6	9.0	9.5	4.8	5.5	8.2
TFP	0.6–1.4	1.3–2.4	3.7–4.6	(0.1)–0.7	(0.1)–0.6	1.2–2.1
Agriculture						
NMP	3.4	2.7	(0.8)	4.6	(1.6)	2.1
TFP	2.2–2.7	0.4–0.9	(3.6–4.1)	1.6–1.9	(5.6–5.9)	(0.6–0.1)
Transport and communications						
NMP	15.8	10.0	7.6	7.3	8.4	10.0
TFP	6.4–7.8	1.5–2.5	0–1.0	0.8–1.3	2.6–3.2	2.2–3.1
Trade, material supply etc.						
NMP	4.3	6.9	11.4	10.3	8.0	8.2
TFP	(4.4–5.3)	(0.7)–0.1	6.1–6.4	4.5–5.3	4.1–5.0	1.3–2.0

Sources: NMP calculated from Table 1 above.

TFP calculated as the difference between NMP growth and the growth in total inputs. Input growth calculated from Tables 2, 3, 6 and 7 combined according to weights given in Appendix I.

A figure in parantheses denotes a *negative* rate of growth.

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

Table 9. Productivity of inputs in agriculture: UzSSR, 1960–1982

	1960	1965	1970	1975	1980	1982
Output per employee:						
Total	77	93	100	84	93	82
State and kolkhoz only	75	92	100	84	95	84
Output per unit of fixed capital	196	146	100	54	43	35
Output per hectare	82	91	100	90	104	99

Sources: Computed from Tables 1, 3, 6, and 7.

sults for individual quinquennia may be distorted by untypical performance in terminal years, such a criticism is less valid of the period as a whole. The figures in the last column show that output increased at an average rate of 2.1 per cent — a reasonable achievement. But this was dearly bought: total factor productivity declined over the period. And, as the figures in Table 9 show, performance in this sector was uniformly poor. Productivity with respect to all inputs and with respect to each individually, has failed to increase since 1970.

The third panel refers to transport and communications, again a potentially dynamic sector in a modern industrial economy. Here too, after rapid growth in both output and productivity in the 1960s, there has been a slowdown in the later 1970s. This was particularly marked in 1975–1980, when productivity increases accounted for only 10 or 20 per cent of output growth.

The final panel refers to trade and material supply etc. The figures here only compound the problems that have been alluded to in earlier sections of the paper. Measured rates of growth in output have accelerated; and factor-productivity has switched from being negative in the 1960s to being strongly positive in the 1970s. It is this anomolous behaviour and the apparent lack of any revolutionary technology affecting the activities of the sector that makes one suspect that these results are the product of statistical error or the tacit change of definitions.

So, the detailed analysis of the performance of individual sectors suggests that the undoubted increases in output that have been secured in the past 20–25 years in Uzbekistan have been the result primarily of the mobilisation of resources. Output per unit of input has tended to stagnate, not only in Agriculture but throughout the economy. Productivity tends to be low in comparison with other regions and this will make it more difficult for the republican authorities

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

to justify the commitment of increasingly scarce national investment resources to projects within Central Asia. This, in turn will hinder the absorbtion of a rapidly growing population into employment and make it more difficult to ensure that increases in living standards within the republic keep pace with those enjoyed in other parts of the country. The political implications of this economic problem are taken up in the concluding section of the paper.

5. CONCLUSION: ECONOMIC DEVELOPMENT AND POLITICAL CONSCIOUSNESS

In earlier papers I have argued that there is no reason for believing that the doctrines of political nationalism have enjoyed widespread support in Soviet Central Asia. And I have suggested that Soviet success in containing such fissiparous tendencies can be attributed in large measure to the achievements of economic policy. Adherence to Moscow after 1917 has ensured for the population of the region a standard of living higher than that enjoyed in any neighbouring country; it has provided the area with libraries, schools and hospitals, with modern towns and a network of paved rural roads, in short, with the material attributes of a modern industrial society. It has also provided universal literacy and thus general access to the *weltanschauung* derived from European secular rationalism.

For many, however, adherence to Moscow's ideas may still be conditional and if economic progress begins to falter, local support for the supra-national state may be undermined. In particular, if declining growth-rates inhibit the provision of high-level jobs and thus frustrate aspirations for continued social mobility, experience from elsewhere in the world suggests that there could be an upsurge of inter-ethnic friction. In many places, members of particular language groups have claimed preferential treatment for themselves in the competition for jobs in education, in government administration, culture and the arts. And such statements have recently been heard in Uzbekistan too. (Lubin, 1984, pp. 154–64).

Given the nature of political discourse in the USSR, and the ethnic composition of the political communities in individual republics, it is not clear that these claims will develop into a self-conscious philosophy of political nationalism. (For a more extended justification of this assertion, see Mary McAuley, 1984.) Similarly, it is not certain that the disgruntled, those who have failed to secure elite employment, will be able to enlist the support of other disaffected groups for a programme of change based on such a (political) nationalist philosophy. But such a response is frequent. Thus, a deceleration in the rate

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

of economic development is fraught with difficulties for any government in a multi-ethnic state that wishes to avoid the exacerbation of nationalist sentiments.

Yet the evidence presented in this paper demonstrates that the authorities in Tashkent (and, perhaps, the planners in Moscow) have been faced with just such a deceleration. The policies pursued in the 1970s have been unable to reverse the decline in the growth of output. By 1980–1982, indeed, growth in per-capita income appears to have come to a complete halt. In such circumstances, increases in investment are likely to involve a fall in per-capita consumption — unless Moscow can be persuaded to transfer resources from other parts of the country.

For Tashkent, it appears, a significant part of the solution to the difficulties facing the Uzbek economy, involves access to new water resources. But the proposed diversion of Siberian rivers will be extremely costly; and the call to implement the plan comes at a time of some stringency for capital resources in the country as a whole. Tashkent (or, rather, Central Asia as a whole) finds itself in competition with other regions. And the present indications are that the short-term needs of the oil industry and Siberia will be afforded higher priority.

A failure to obtain access to additional water resources will, in all probability prevent the regeneration of Uzbek agriculture. And that, in the absence of growing subsidies, will make it difficult to ensure continuing increases in the incomes of rural population. This must, inevitably increase levels of popular dissatisfaction (even if, at the same time, it increases the rate of out-migration and so helps to solve the problem of labour shortage in Siberia and the Central Industrial Provinces).

Thus, it is possible that an impoverished or dislocated "peasantry" will emerge at the same time that reduced growth leads to the frustration of aspirations for mobility into the economic and social elite. In 1982 there were just over a million "specialists" employed in the UzSSR; they will all want to see their offspring attain specialist status too. So will numbers of workers and peasants. Given the size of Uzbek families this betokens a significant continuing demand on the economy to produce high-level jobs in the next two or three decades, a demand that is unlikely to be able to satisfy. The combination of a frustrated potential elite and an impoverished or dislocated "peasantry" may prove politically and socially explosive.

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

BIBLIOGRAPHY

Bergson, A., *Productivity and the Social System — the USSR and the West* (Cambridge, MA: Harvard University Press, 1978).
Cohn, S., *Economic Development in the Soviet Union* (Lexington, MA: Heath 1969).
Gellner, E., *Nation and Nationalism* (Oxford: Blackwell, 1983).
Gomulka, S., "Soviet Postwar Industrial Growth, Capital-Labor Substitution and Technical Change: A Re-examination," in Z. Fallenbuchl (ed.) *Economic Development in the Soviet Union and Eastern Europe* (New York: Praeger, 1976).
Lubin, N., *Labour and Nationality in Soviet Central Asia,* (London: Macmillan/St Antony's, 1984).
McAuley, A., *Economic Welfare in the Soviet Union* (Madison: Wisconsin University Press 1979).
McAuley, A., "Nation and Nationalism in Central Asia," in C. Keeble (ed.) *The Soviet State: The Domestic Roots of Soviet Foreign Policy* (London: Gower [for RIIA], 1985), pp. 42–56.
McAuley, M., "Nationalism and the Soviet Multi-ethnic State," in N. Harding (ed.) *The State in Socialist Society* (London: Macmillan 1984), pp. 179–210.
Weitzman, M. I., "Soviet Postwar Growth and Capital–Labor Substitution," *American Economic Review* Vol. 60 (1970), No. 4 pp. 676–692.
Eesti NSV Rahvamajandus 1977 aastal. Tallin.
Gosudarstvennyi biudzhet SSSR i biudzhety soiuzhykh respublik, 'Finansy i Statistika'. Moscow (various years).
Narodnoe khoziaystvo Estonskoi SSR (1971). Tallin.
Narodhue khoziaystvo SSSR. Moscow (various years).
Narodnoe khoziaystvo Uzbekskoi SSR. Tashkent (various years).

APPENDIX 1
THE CALCULATION OF TOTAL FACTOR PRODUCTIVITY

In a Cobb-Douglas Production Function output is expressed as a power function of selected inputs where the exponents sum to unity. If one differentiates this function with respect to time, a little straightforward algebraic manipulation will yield the following relationship between the growth rate of output and those of inputs:

$$g(y) = ag(k) + bg(l) + cg(s) + dg(h) \text{ a } g(r) \qquad (1)$$

where $g(y)$ is the growth rate of output
$g(k)$ is the growth rate of the fixed capital stock
$g(l)$ is the growth rate of employment
$g(s)$ is the growth rate of sown area
$g(h)$ is the growth rate of livestock herds
$g(r)$ is the growth rate of the residual
the coefficients a–d are the exponents of the respective inputs in the original production function.

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

The entries in Tables 7 and 8 are derived from equation (1).

The weights *a–d* have been derived from assumed factor-incomes in 1970 as follows:
Fixed capital for Variant A a 12 per cent rate of return has been postulated in line with the standard methodology on investment appraisal. Variants B and C assume a 6 per cent return.
Employment Variants A and B include earnings from state and collective farm sectors and receipts from the private sector. Variant C excludes the last element.
Sown area the return on land is postulated to equal 40 per cent of labour incomes in agriculture in each variant.
Livestock is postulated to earn the same rate of return as fixed capital. The volume of livestock was converted to a ruble value by assuming that a unit (equivalent to one cow) was worth 383.5 rubles. This sum was estimated from data on procurements and the size of animals delivered.

For each variant, the factor incomes generated by the above postulates were calculated and summed; individual entries were then expressed as a proportion of the total. These weights were then used to combine individual factor growth rates to generate estimates of the growth rate of total inputs underlying Tables 7 and 8. The details of this calculation are set out in Table A1 (overleaf).

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013

Table A1. Alternative weights used in factor productivity calculations

	Variant A		Variant B		Variant C	
	M rubles	%	M rubles	%	M rubles	%
Net material product						
Labour earnings	5130	0.62	5130	0.70	3704	0.69
Fixed capital	1813	0.22	906	0.12	906	0.17
Farmland	1235	0.15	1235	0.17	665	0.12
Livestock	167	0.02	84	0.01	84	0.02
Industry and construction						
Labour earnings	1380	0.64	1380	0.78		
Fixed capital	764	0.36	382	0.22		
Agriculture						
Labour earnings	3088	0.61	3088	0.66	1662	0.61
Fixed capital	591	0.12	296	0.06	296	0.11
Farmland	1235	0.24	1235	0.26	665	0.25
Livestock	167	0.03	84	0.02	84	0.03
Transport and communications						
Labour earnings	382	0.53	382	0.70		
Fixed capital	334	0.47	167	0.30		
Trade and material supply etc						
Labour earnings	280	0.70	280	0.82		
Fixed capital	123	0.30	62	0.18		

Sources: Labour earnings calculated from *NK UzSSR* (1970), pp. 201, 203; private sector receipts from McAuley, (1979), Appendix B.

Other entries calculated from Tables 1, 7 and 8 according to the assumptions spelled out above.

Downloaded by [Memorial University of Newfoundland] at 08:03 20 July 2013